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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,896	09/09/2003	Allan William Rainey	065119.0222	2644

23932 7590 09/07/2006

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EXAMINER

MAI, NGOCLAN THI

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 09/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/657,896

Applicant(s)

RAINEY ET AL.

Examiner

Ngoclan T. Mai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39, 41 and 42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-25, 27-37, 39, 41 and 42 is/are rejected.
- 7) ☐ Claim(s) 11, 26 and 38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Currently claims 1-39, 41-42 are pending with claims 40 cancelled and claims 1, 1,9, 11, 16, 25, 26, 28, 37, 38, 41-42 amended. Upon further consideration, although subject matter recited in previous claims 11, 26 and 38 has been incorporated in claim 1, the claims are rejected for the following reason.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 1, 10, 13-16, 27, 28, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Kar et al. (U.S. Patent No. 4,869,329).

Kar et al. disclose a method for making improved inserts for rock bits comprising placing the inserts into a vibratory or a rotary tumblers with water and a small amount of detergent, abstract and col. 3, l. 45-62. The inserts can be sintered (cemented) tungsten carbide, i.e., tungsten carbide bonded with cobalt by sintering or polycrystalline diamond, col. 1, l. 12-15. Kar et al teach during the vibratory or rotary motion of the tumbler the inserts randomly impact against each other. Note that this reads the claimed cascading step. While Kar et al do not teach cascading the inserts in a cascading machine under low-energy conditions and then cascading under high-energy conditions, Kar et al inherently teach that because the cascading machine used by the reference would as it ramped up to high energy processing would pass through a low energy processing state.

As for claim 10, Kar et al disclosed the sintered carbide inserts are ground before placing in the tumbler, col. 3, l. 52-54.

As for claims 14, 27, and 39, Kar et al teach tumbling action increases the surface hardness and improve the toughness of the inserts, abstract and col. 2, l. 61-68.

As for claim 15, Kar et al disclose sintered tungsten carbide inserts are formed by liquid phase sintering, col. 2, lines 2-13.

Claim Rejections - 35 USC § 103

4. Claims 2-6, 8-9, 12, 17-23, 25, 29-35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kar et al in view of Hoffman (U.S. Patent No. 6,875,081).

The differences between the claims and Kar et al are that Kar et al do not teach the speed of the tumbling machine, selecting the speed based upon an average mass of the components, material grade, size and geometry of the plurality components or selecting a volume of each barrel.

Hoffman discloses a method for forming cutting tool having a harder and smoother surface employing rotational process apparatus (col. 8, lines 19-24) where the operating speed and the time for the process are approximately 175 RPM and 30-60 minutes for the first stage and 120 RPM for 60 minutes for the second stage. The rotational process apparatus is a high speed centrifugal finishing apparatus comprising plurality of vessels, i.e., containers (34 in Fig. 4) radially disposed around a spindle (32 in Fig. 4)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the rotational process apparatus taught by Hoffman since doing so many inserts for rock bits can be process as the same time. Since Hoffman teaches the rotating speed and time as disclosed above can be used to also form cutting tool having harder and smoother surface, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the rotating speed and time for processing cutting tool taught by Hoffman be employ to also processing the cutting tool of Kar et al. Determination of an optimum or preferred speed and time used to forming cutting tool having the desired surface properties is within the level of one skill in the art and would have been obvious. The selecting of speed and time for the cutting tool as disclosed by Hoffman inherently is based upon the grade, mass, size and geometry of the cutting tool components.

5. Claims 7, 24 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kar et al in view of Hoffman as applied to claims 5, 21, and 33 above, and further in view of GB 1,249,056.

The difference between the claims and Kar et al in view of Hoffman is that there is no teaching of using containers having hexagonal shape. However it is conventionally known in the art to used grinding

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apparatus having hexagonal-shape container, see GB 1,249,056, figure 4. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made that the multiple vessels or containers of Hoffman be made to have hexagonal shape as taught by GB 1,249,056 to perform the process taught by Kar for forming improved sintered tungsten carbide inserts for rock bit.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 41-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 41 and 42 recite the limitation "the plurality of cemented abrasive components" in lines 1 and 2. There is insufficient antecedent basis for this limitation in the claims.

8. Claims 11, 26, and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoclan T. Mai whose telephone number is (571) 272-1246. The examiner can normally be reached on 9:30-6:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ngoclan T. Mai
Primary Examiner
Art Unit 1742

n.m.